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EXAMINER

GODENSCHWAGER, PETER F

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Response to Arguments

Applicant's arguments filed October 7, 2009 have been fully considered but they are not persuasive.

Applicant argues that Shizuko does not teach the sequence of steps as instantly claimed. However, as set forth in the office action mailed June 19, 2009, it is prima facie obvious in the absence of new or unexpected results to change the sequence of addition of ingredients (i.e. adding metal ion to solvent then mixing two solutions as opposed to adding metal ion to an already formed solution) (see MPEP 2144.04 IV). Furthermore, with regards to Applicant's assertion that Shizuko teaches merely adding a plurality of metal ions to a metal colloid solution, Shizuko clearly teaches (as cited above in [0010] "[o]ne by one, if the third and fourth transition metal ion is added, the layer of the third and fourth metal atom will be formed..." clearly teaching adding the metal ions sequentially and not merely mixing them in a solution at once. As Shizuko teaches that when the metal ions form a complex, stratified structure together (i.e. when a layer is formed) "a metal ion is returned to a metal atom" (i.e. its oxidation state returns to zero, it is reduced) ([0009]), *Shizuko also teaches that the metal ions are reduced to form a binary colloid solution.*

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a Pt/Pd core/shell structure, and also a uniform Pt shell layer) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Therefore, the argument that the method of Shizuko would not be capable of forming this

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specific core/shell structure is not relevant to the instant claims, as the instant claims recite the use of any metal ions and are not limited to Pd or Pt. Furthermore, Applicant argues that Shizuko's method would not produce a colloid of preferable morphology. However, the only morphology *claimed* is that of a three layer core/shell structure which Shizuko teaches as set forth above and on Pg. 4, ¶2-4 of the office action mailed June 19, 2009. Therefore it is not clear how the morphology of the claimed process would differ from the process rendered obvious by Shizuko in view of Wang et al.

With regards to Applicant's arguments that the method of Shizuko makes it difficult to form a Pt shell layer in a uniform manner, a showing of new or unexpected results must be based on evidence, not argument or speculation (see MPEP 2145).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant argues that Shizuko is silent as to whether the colloid should be provided with reducing ability or not, however, the metals that Shizuko teaches Ni, Pt, Pd ([0014]) when combined with the teaching of Wang et al. concerning adding hydrogen as set forth above, would form reduction catalysts and would therefore inherently have such a property. Therefore, by forming the initial coated layer on the first nanoparticle present, Shizuko in view of Wang et al. will be providing a second nanoparticle with reducing capability.

Applicant further argues that Wang et al. does not teach adding the hydrogen to a reduced colloid. However, Wang et al. clearly teach that noble metals like Pd and Pt (metals are not salts

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and thus are in their reduced state) have the ability to absorb hydrogen (Pg. 5302, Col. 2, ¶2). Furthermore, Wang et al. teaches explicitly adding hydrogen to Pd core colloid (i.e. a reduced metal) (Pg. 5302, Col. 1, ¶1). As Shizuko teaches that when the metal ions form a complex, stratified structure together (i.e. when a layer is formed) "a metal ion is returned to a metal atom" (i.e. it's oxidation state returns to zero, it is reduced) ([0009]), *Shizuko also teaches that the metal ions are reduced* to form a binary colloid solution. Therefore, the metals of Shizuko would be in a reduced state when adding the hydrogen of Wang et al.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER F. GODENSCHWAGER whose telephone number is (571)270-3302. The examiner can normally be reached on Monday-Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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